

DOS-III B DVR15 FOR 7261A CARD READER
(24307B - REV. 1446)

BINARY TAPE	24307-16017
SOURCE TAPE	24307-18073
SOURCE LISTING	24307-19010

PAGE 0001

0001

ASMB,R,B,L,C

** NO ERRORS*

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0001          ASMB,R,B,L,C
0003 00000    NAM DVR15,4
0004          ENT I.15,C.15

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0006*
0007*          ***HP 7261A DOS DVR 15***
0008*
0009*          INITIATION SECTION

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0011 00000 000000 I.15 NOP
0012 00001 016136R JSB SETIO      CONFIGURE IO
0013 00002 005710 BLF,SLB      STATUS OK-TO-PICK?
0014 00003 026007R JMP OK        YES
0015 00004 005323 RBR,RBR      IF NOT,
0016 00005 006031 SSB,SLB,RSS STATUS EXTENDED-CARD?
0017 00006 134206 ISZ EQT4,I NO - SET CR NOT READY
0018 00007 164206 OK LDB EQT4,I LOAD STATUS
0019 00010 160213 LDA EQT9,I LOAD CONTROL WORD
0020 00011 012112R AND D3      ISOLATE REQUEST CODE.
0021 00012 052112R CPA D3      CONTROL REQUEST?
0022 00013 026022R JMP R3      YES - GO GET SUBFUNCTION
0023 00014 000031 SLA,ARS      NO - READ REQUEST?
0024 00015 026050R JMP READ    YES, CONTINUE.
0025 00016 126000R JMP I.15,I REJECT

0027 00017 000400 B400 OCT 400
0028 00020 000600 B600 OCT 600
0029 00021 003700 B3700 OCT 3700

0031 00022 160213 R3 LDA EQT9,I LOAD CONTROL WORD
0032 00023 012021R AND B3700 ISOLATE THE FUNCTION CODE.
0033 00024 050067 CPA B100 HOPPER SELECT?
0034 00025 026103R JMP HOPR YES
0035 00026 052017R CPA B400 RING BELL?
0036 00027 026101R JMP BELL YES
0037 00030 052020R CPA B600 DYNAMIC STATUS?
0038 00031 026036R JMP DYSTA YES - SET IT UP.
0039 00032 002002 SZA IS IT CLEAR REQUEST ?
0040 00033 026041R JMP A2 NO - REJECT THE REQUEST.
0041 00034 170220 STA EQT14,I YES - CLEAR TRANS. LOG
0042 00035 026126R JMP A4 AND COMPLETION RETURN.
0043 00036 060224 DYSTA LDA RQCNT GET NUMBER OF PARAMETERS.
0044 00037 052113R CPA D4 IS IT FOUR ?
0045 00040 026043R JMP OKSTA YES - PROCESS IT
0046 00041 052111R A2 LDA D2 CONTROL REQ INDEFINED.
0047 00042 126000R JMP I.15,I REJECT
0048 00043 160206 OKSTA LDA EQT4,I GET STATUS WORD.
0049 00044 164215 LDB EQT11,I AND ADDRESS.
0050 00045 010074 AND LUMAF MASK OUT JUNK.
0051 00046 170001 STA B,I STORE IT AWAY
0052 00047 026126R JMP A4 COMPLETION RETURN.

0054 00050 170220 READ STA EQT14,I CLEAR TRANSMISSION LOG

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0055	00051	150215		CPA	EQT11,I	ZERO BUFFER LENGTH ?
0056	00052	026122R		JMP	SKIP	YES, GO CHECK THE MODE.
0057	00053	004010	READ0	SLB		CR READY?
0058	00054	026077R		JMP	A3	NO - GO TO EXIT
0059	00055	060041		LDA	N10	INITIALIZE
0060	00056	170217		STA	EQT13,I	PICK FAIL COUNTER
0061	00057	160205	READ1	LDA	EQT3,I	GET SELECT CODE
0062	00060	010072		AND	B77	BY MASKING OUT JUNK,
0063	00061	102606	DMA1	OTA	DMA	ASSIGN DMA
0064	00062	062130R		LDA	BUFAD	LOAD THE INTERNAL BUFFER ADDRES
0065	00063	106702	DMA2	CLC	DMA-4	PREPARE THE ADDRESS REGISTER.
0066	00064	102602	DMA3	OTA	DMA-4	OUTPUT THE BUFFER ADDRESS.
0067	00065	062131R		LDA	N97	LOAD THE WORD COUNT
0068	00066	102702	DMA4	STC	DMA-4	PREPARE DMA WORD COUNT
0069	00067	102602	DMA5	OTA	DMA-4	OUTPUT THE WORD COUNT
0070	00070	103700	CR1	STC	CR,C	ISSUE A PICK COMMAND TO THE CR.
0071	00071	103706	DMA6	STC	DMA,C	ACTIVATE DMA
0072	00072	106706	DMA7	CLC	DMA	CLEAR DMA
0073	00073	002400		CLA		
0074	00074	052000R		CPA	I,15	PICK FAILURE RETRY?
0075	00075	026206R		JMP	C,RTN	YES, GO TO CONTINUATION RETURN.
0076	00076	126000R		JMP	I,15,I	NO, RETURN SUCCESSFUL INITIATIO
0078	00077	062112R	A3	LDA	D3	SET FOR CR NOT READY
0079	00100	126000R		JMP	I,15,I	RETURN
0081	00101	060063	BELL	LDA	B10	BIT 3
0082	00102	026106R		JMP	CR2	
0083	00103	062113R	HOPR	LDA	D4	BIT 2
0084	00104	004010		SLB		CR READY?
0085	00105	026077R		JMP	A3	NO - GO TO EXIT
0086	00106	102600	CR2	OTA	CR	TURN ON BIT
0087	00107	002003		SZA	RSS	10 U'SECS ELAPSED?
0088	00110	026126R		JMP	A4	YES - GO TO IMMEDIATE COMPLETIO
0089	00111	000002	D2	DEC	2	NO -
0090	00112	000003	D3	DEC	3	BURN
0091	00113	000004	D4	DEC	4	TIME
0092	00114	002400		CLA		TURN OFF
0093	00115	064041		LDB	N10	WAIT 50 MICROSECS
0094	00116	006004		INB		
0095	00117	034001		ISZ	1	DONE WAITING?
0096	00120	026116R		JMP	+ -2	NO
0097	00121	026106R		JMP	CR2	THAT BIT
0099	00122	160213	SKIP	LDA	EQT9,I	LOAD CONTROL WORD
0100	00123	010067		AND	B100	ISOLATE THE MODE BIT.
0101	00124	002002		SZA		MODE BINARY?
0102	00125	026053R		JMP	READ0	YES, GO SKIP RECORD
0103	00126	062113R	A4	LDA	D4	SET FOR IMMEDIATE COMPLETION
0104	00127	126000R		JMP	I,15,I	RETURN
0106	00130	100675R	BUFAD	DEF	I,BUF,I	INTERNAL BUFFER FOR DMA
0108	00131	177637	N97	DEC	-97	
0109	00132	000700	B700	OCT	700	

PAGE 0004 #31 *** HP 7261A DOS DRIVER - DVR15 ***

0110	00133	004000	B4000	OCT	4000
0111	00134	004200	B4200	OCT	4200
0112	00135	004300	B4300	OCT	4300

0114* CONFIGURATION SECTION

0116	00136	000000	SETIO	NOP	
0117	00137	032202R	IOR	CLCSC	CONFIGURE
0118	00140	072141R	STA	++1	& EXECUTE
0119	00141	106700	CLC	CR	CLEAR CR
0121	00142	022511R	XOR	B5000	
0122	00143	072070R	STA	CR1	CONFIGURE
0123	00144	022245R	XOR	B5200	CR IO
0124	00145	072214R	STA	DSTAT	
0125	00146	072147R	STA	++1	
0126	00147	106500	LIB	CR	LOAD CR STATUS
0127	00150	022135R	XOR	B4300	
0128	00151	072106R	STA	CR2	
0130	00152	060257	LDA	CHAN	SAVE ASSIGNED
0131	00153	170216	STA	EQT12,I	DMA CHANNEL
0133	00154	032202R	IOR	CLCSC	
0134	00155	072072R	STA	DMA7	
0135	00156	022511R	XOR	B5000	
0136	00157	072071R	STA	DMA6	
0137	00160	022323R	XOR	B1600	
0138	00161	072215R	STA	DMA8	
0139	00162	022132R	XOR	B700	CONFIGURE
0140	00163	072061R	STA	DMA1	DMA IO
0141	00164	022113R	XOR	D4	
0142	00165	072064R	STA	DMA3	
0143	00166	072067R	STA	DMA5	
0144	00167	040067	ADA	B100	
0145	00170	072066R	STA	DMA4	
0146	00171	042133R	ADA	B4000	
0147	00172	072063R	STA	DMA2	
0148	00173	022134R	XOR	B4200	
0149	00174	072232R	STA	DMA9	
0151	00175	160206	LDA	EQT4,I	
0152	00176	010075	AND	HIHAF	CLEAR STATUS WORD
0153	00177	170206	STA	EQT4,I	
0155	00200	126136R	JMP	SETIO,I	
0157	00201	000675R	BUF	DEF I,BUF	
0158	00202	106700	CLCSC	CLC 0	
0160	00203	032202R	EXTRA	IOR CLCSC	CLEAR
0161	00204	072205R	STA	++1	INTERRUPTING
0162	00205	106700	CLC	0	SELECT CODE
0163	00206	036210R	C,RTN	ISZ C,15	INCREMENT FOR
0164	00207	126210R	JMP	C,15,I	CONTINUATION RETURN

0167* COMPLETION SECTION

0169	00210	300000	C,15	NOP	
0170	00211	164216		LDB EQT12,I	GET DMA NUMBER BEING USED
0171	00212	054000		CPB A	DMA INTERRUPT?
0172	00213	026203R		JMP EXTRA	YES - IGNORE IT
0173	00214	106500	DSTAT	LIB CR	GET CR STATUS
0174	00215	102106	DMA8	STF DMA	STOP ANY DMA TRANSFER
0175	00216	002400		CLA	
0176	00217	170207		STA EQT5,I	CLEAR LAST CARD SWITCH.
0177	00220	005222		RBL,RBL	SHIFT BIT 14 TO BIT 0
0178	00221	006011		SLB,RSS	STATUS 0100 OR 0110 ?
0179	00222	026610R		JMP OPERR	NO - GO PROCESS ERROR
0180	00223	006031		SSB,SLB,RSS	LAST CARD?
0181	00224	134207		ISZ EQT5,I	YES - SET SWITCH.
0182	00225	150215		CPA EQT11,I	WAS A RECORD BEING SKIPPED ?
0183	00226	026622R		JMP R,ERR	YES, GO TO COMPLETION RETURN.
0184	00227	072066R		STA CNTR	NO, INITIALIZE THE WORD COUNTER.
0185	00230	072064R		STA COUNT	INITIALIZE COLUMN COUNTER
0186	00231	072070R		STA NULL	INITIALIZE NULL SWITCH
0187	00232	102502	DMA9	LIA DMA-4	LOAD THE WORD COUNT REGISTER.
0188	00233	052131R		CPA N97	WAS ANY DATA TRANSMITTED ?
0189	00234	026631R		JMP ERROR	NO, GO PROCESS ERROR
0190	00235	003004		CMA,INA	YES, WORD COUNT RESIDUE POSITIVE
0191	00236	042131R		ADA N97	COMPUTE AND
0192	00237	072071R		STA WCI	STORE THE WORD COUNT INDEX.
0193	00240	066201R		LDB BUF	LOAD INTERNAL BUFFER ADDRESS.
0194	00241	076061R		STB INPTR	STORE BUFFER ADDRESS INDEX.
0195	00242	076072R		STB TEMP	SAVE THE BUFFER ADDRESS INDEX.
0196	00243	164213		LDB EQT9,I	LOAD THE FUNCTION REQUEST CODE.
0197	00244	005727		BLF,BLF	LOOK AT
0198	00245	035200	B5200	RBL	MODE BIT
0199	00246	006020		SSB	BINARY?
0200	00247	026451R		JMP BINRY	YES, GO PROCESS BINARY CARD.
0201	00250	062071R		LDA WCI	RESTORE A REGISTER
0202	00251	164215		LDB EQT11,I	LOAD THE ORIGINAL REQUEST LENGTH
0203	00252	006020		SSB	IS THE REQUEST IN WORDS?
0204	00253	007005		CMB,INB,RSS	NO, COMPLEMENT CHARACTER COUNT.
0205	00254	005200		RBL	YES, CONVERT WORDS TO CHARACTERS
0206	00255	006020		SSB	CHARACTER LENGTH OVERFLOW?
0207	00256	026263R		JMP CHADR	YES, CONTINUE.
0208	00257	040001		ADA B	STORE LEAST
0209	00260	007004		CMB,INB	OF # REQ'D
0210	00261	002020		SSA	OR # READ
0211	00262	076071R		STB WCI	AS WORD COUNT INDEX
0212	00263	160214	CHADR	LDA EQT10,I	LOAD THE USER BUFFER ADDRESS.
0213	00264	000066		CLE,ELA	SHIFT TO FORM CHARACTER ADDRESS.
0214	00265	072063R		STA EXPTR	SAVE THE CHARACTER ADDRESS.
0215	00266	162061R	LOOP	LDA INPTR,I	LOAD THE DATA COLUMN.
0216	00267	036064R		ISZ COUNT	INCREMENT THE COLUMN COUNTER.
0217	00270	012436R		AND 07777	GET RID OF STATUS
0218	00271	002003		SZA,RSS	IF COLUMN IS BLANK,
0219	00272	026403R		JMP BLANK	SET CHARACTER A BLANK.
0220	00273	001700		ALF	LEFT JUSTIFY COLUMN
0221	00274	172061R		STA INPTR,I	& RESTORE IT
0222	00275	007400		CCB	PRESET BIT 8

0223	00276	076215R	STB EIGHT	SWITCH
0224	00277	066064R	LDB COUNT	LOAD THE CURRENT COLUMN COUNTER
0225	00300	076066R	STB CNTR	UPDATE CHARACTER COUNT
0227	00301	012435R	AND B160	MASK OFF ALL BUT BITS 12,11,0
0228	00302	006400	CLB	CLEAR B FOR LATER
0229	00303	002003	SZA,RSS	ANY HIGH PUNCHES ?
0230	00304	026315R	JMP NOHI	NO, TEST FOR LOW PUNCHES
0232	00305	050067	CPA B100	BIT 0 PUNCHED ?
0233	00306	066575R	LDB D32	YES, LOAD 32
0234	00307	052575R	CPA B40	BIT 11 PUNCHED ?
0235	00310	066574R	LDB D16	YES, LOAD 16
0236	00311	052574R	CPA B20	BIT 12 PUNCHED ?
0237	00312	066434R	LDB D48	YES, LOAD 48
0238	00313	006003	SZB,RSS	WAS ONLY ONE COLUMN PUNCHED ?
0239	00314	026631R	JMP ERROR	NO, ILLEGAL PUNCH
0241	00315	076067R	NOHI STB TOTAL	SET HIGH FIELD WEIGHT
0242	00316	122061R	XOR INPTR,I	ISOLATE LOWER BITS OF COLUMN
0243	00317	002003	SZA,RSS	ANY LOW BITS PUNCHED ?
0244	00320	026371R	JMP NOLOW	NO, CHARACTER COMPLETED.
0246	00321	002120	CLE,SSA	BIT 9 SET ?
0247	00322	064064	LDB D9	YES, LOAD WEIGHT
0248	00323	001600	B1600 ELA	BIT 9 SET ?
0249	00324	002040	SEZ	
0250	00325	026364R	JMP SET	YES, TEST FOR MORE BITS.
0252	00326	001600	ELA	BIT 8 SET ?
0253	00327	006441	CLB,SEZ,RSS	YES,CLEAR B FOR LATER
0254	00330	026334R	JMP ++4	BIT 8 WAS NOT SET.
0255	00331	076215R	STB EIGHT	SET THE SWITCH
0256	00332	002103	CLE,SZA,RSS	WAS ONLY BIT 8 SET ?
0257	00333	026367R	JMP BIT8	YES, EXIT TO FORM CHARACTER.
0259	00334	064062	LDB D7	LOAD WEIGHT COUNTER
0260	00335	001600	ELA	IS BIT 7 SET ?
0261	00336	002040	SEZ	
0262	00337	026364R	JMP SET	YES, CHECK FOR OTHER PUNCHES
0263	00340	064061	LDB D6	
0264	00341	001600	ELA	IS BIT 6 SET ?
0265	00342	002040	SEZ	
0266	00343	026364R	JMP SET	YES
0267	00344	064060	LDB D5	
0268	00345	001600	ELA	IS BIT 5 SET ?
0269	00346	002040	SEZ	
0270	00347	026364R	JMP SET	YES
0271	00350	066113R	LDB D4	
0272	00351	001600	ELA	IS BIT 4 SET ?
0273	00352	002040	SEZ	
0274	00353	026364R	JMP SET	YES
0275	00354	066112R	LDB D3	
0276	00355	001600	ELA	IS BIT 3 SET ?
0277	00356	002040	SEZ	
0278	00357	026364R	JMP SET	YES

0279	00360	066111R		LDB D2	
0280	00361	001600		ELA	IS BIT 2 SET ?
0281	00362	002041		SEZ,RSS	YES
0282	00363	026430R		JMP ONE	NO, BIT 1 MUST BE,
0283	00364	002002	SET	SZA	ANY OTHER PUNCHES ?
0284	00365	026631R		JMP ERROR	YES, ILLEGAL COMBINATION
0285	00366	036215R		ISZ EIGHT	WAS BIT 8 SWITCH SET?
0286	00367	044063	BIT8	ADB B10	YES, ADD WEIGH FOR IT
0287	00370	046067R	BIT1	ADB TOTAL	ADD WEIGHT FOR FIELD BITS.
0288	00371	004031	NOLOW	SLB,BRS	PLACE ODD BIT IN A-REG.
0289	00372	002404		CLA,INA	SET ODD CHARACTER FLAG
0290	00373	046634R		ADB TABLE	FIND PLACE IN
0291	00374	002102		CLE,SZA	ODD CHARACTER ?
0292	00375	002300		CCE	
0293	00376	160001		LDA B,I	GET WORD WITH TWO CHARS.
0294	00377	002041		SEZ,RSS	ODD CHARACTER ?
0295	00400	001727		ALF,ALF	YES, RIGHT JUSTIFY IT
0296	00401	010074		AND LOHAF	ISOLATE THE CHARACTER.
0297	00402	002001		RSS	
0299	00403	062575R	BLANK	LDA B40	LOAD ASCII BLANK
0301	00404	036061R		ISZ INPTR	INCREMENT BUFFER ADDRESS POINTER
0302	00405	066063R		LDB EXPTR	LOAD CHARACTER BUFFER ADDRESS.
0303	00406	004065		CLE,ERB	SHIFT, FORM WORD BUFFER ADDRESS.
0304	00407	002041		SEZ,RSS	IS NEW CHARACTER TO BE LOWER?
0305	00410	001737		ALF,SLA,ALF	NO, SHIFT TO HIGH ORDER; SKIP.
0306	00411	130001		IOR B,I	YES, INCLUDE THE HIGH ORDER PART
0307	00412	170001		STA B,I	STORE THE WORD IN USER BUFFER.
0308	00413	036063R		ISZ EXPTR	INCREMENT BUFFER ADDRESS POINTER
0309	00414	036071R		ISZ WCI	IS THE BUFFER EXHAUSTED?
0310	00415	026266R		JMP LOOP	NO, GO PROCESS NEXT COLUMN.
0311	00416	066066R		LDB CNTR	YES, LOAD # NON-BLANK CHARACTERS
0312	00417	006003		SZB,RSS	NULL CARD?
0313	00420	016437R		JSB EOF	YES - GO CHECK FOR EOF
0314	00421	160215		LDA EQT11,I	LOAD THE ORIGINAL REQUEST TYPE.
0315	00422	002121		CLE,SSA,RSS	WAS THE REQUEST IN CHARACTERS?
0316	00423	005500		ERB	NO, CONVERT CHARACTERS TO WORDS.
0317	00424	002440	END,	CLA,SEZ	WAS THE CHARACTER COUNT ODD?
0318	00425	006004		INB	YES, INCREMENT THE WORD COUNT.
0319	00426	174220		STB EQT14,I	SET UP TRANSMISSION LOG.
0320	00427	126210R		JMP C.15,I	COMPLETION RETURN.
0322	00430	006404	ONE	CLB,INB	SET WEIGHT, TEST BIT 8
0323	00431	036215R		ISZ EIGHT	SWITCH
0324	00432	026631R		JMP ERROR	BIT 8 FLAG ON - ILLEGAL PUNCH
0325	00433	026370R		JMP BIT1	JUST BIT 1 PUNCHED
0327	00434	000060	D48	DEC 48	
0328	00435	000160	B160	OCT 160	
0329	00436	007777	B7777	OCT 7777	
0331	00437	000000	EOF	NOP	
0332	00440	160207		LDA EQT5,I	LOAD LAST CARD FLAG
0333	00441	002003		SZA,RSS	IF NOT,
0334	00442	126437R		JMP EOF,I	RETURN

0335	00443	160206	LDA	EQT4,I	OTHERWISE
0336	00444	032450R	IOR	B200	SET BIT 7
0337	00445	170206	STA	EQT4,I	TO INDICATE
0338	00446	002400	CLA		END OF FILE
0339	00447	026622R	JMP	R,ERR	GO TO COMPLETION RETURN
0341	00450	030200	B200	OCT 200	

0343	00451	072064R	BINARY	STA COUNT	STORE WORD COUNT INDEX
0344	00452	066574R	RVRSE	LDB B20	REVERSE CARD COLUMN
0345	00453	162072R		LDA TEMP,I	LOAD COLUMN
0346	00454	001500		ERA	SHIFT OUT OF
0347	00455	005600		ELB	A THRU E INTO B
0348	00456	002041		SEZ,RSS	COLUMN REVERSED?
0349	00457	026454R		JMP *-3	NO
0350	00460	176072R		STB TEMP,I	YES - STORE REVERSED COLUMN
0351	00461	006002		SZB	WAS IT NULL?
0352	00462	036070R		ISZ NULL	NO - TRIP SWITCH
0353	00463	036072R		ISZ TEMP	POINT TO NEXT COLUMN
0354	00464	036064R		ISZ COUNT	CARD REVERSED?
0355	00465	026452R		JMP RVRSE	NO - GET NEXT COLUMN
0356	00466	066070R		LDB NULL	WAS ENTIRE
0357	00467	006003		SZB,RSS	CARD NULL?
0358	00470	016437R		JSB EOF	YES - GO CHECK FOR EOF
0359	00471	164213		LDB EQT9,I	GET CONTROL WORD
0360	00472	005727		BLF,BLF	DETERMINE IF
0361	00473	006020		SSB	PACKED BINARY
0362	00474	026530R		JMP PACKB	YES, GO PROCESS PACKED BINARY,
0363	00475	062071R		LDA WCI	RELOAD WORD COUNT INDEX
0364	00476	016513R		JSB INDEX	
0365	00477	162061R	IMAGE	LDA INPTR,I	LOAD THE DATA COLUMN.
0366	00500	036061R		ISZ INPTR	INCREMENT BUFFER ADDRESS POINTER
0367	00501	172063R		STA EXPTR,I	STORE THE WORD IN USER BUFFER.
0368	00502	036063R		ISZ EXPTR	INCREMENT BUFFER ADDRESS POINTER
0369	00503	036066R		ISZ CNTR	INCREMENT THE WORD COUNTER.
0370	00504	036071R		ISZ WCI	IS THE BUFFER EXHAUSTED?
0371	00505	026477R		JMP IMAGE	NO, CONTINUE.
0372	00506	160215	TLOG	LDA EQT11,I	LOAD THE ORIGINAL REQUEST TYPE
0373	00507	066066R		LDB CNTR	LOAD THE TRANSMISSION LOG.
0374	00510	002120		CLE,SSA	WAS THE REQUEST IN CHARACTERS?
0375	00511	005000	B5000	BLS	YES, CONVERT WORDS TO CHARACTERS
0376	00512	026424R		JMP END,	GO ISSUE A COMPLETION RETURN.
0378	00513	000000	INDEX	NOP	
0379	00514	164214		LDB EQT10,I	LOAD THE USER BUFFER ADDRESS.
0380	00515	076063R		STB EXPTR	SAVE THE USER BUFFER ADDRESS.
0381	00516	164215		LDB EQT11,I	LOAD THE ORIGINAL REQUEST LENGTH
0382	00517	006021		SSB,RSS	IS THE REQUEST IN WORDS?
0383	00520	007005		CMB,INB,RSS	YES, COMPLEMENT WORD COUNT; SKIP
0384	00521	005100		BRS	NO, CONVERT CHARACTERS TO WORDS.
0385	00522	003004		CMA,INA	MAKE THE RECORD LENGTH POSITIVE.
0386	00523	040001		ADA B	STORE LEAST OF
0387	00524	002021		SSA,RSS	# REQ'D OR # READ
0388	00525	076071R		STB WCI	AS WORD COUNT INDEX
0389	00526	126513R		JMP INDEX,I	
0391	00527	000074	D60	DEC 60	
0393	00530	162061R	PACKB	LDA INPTR,I	LOAD THE FIRST DATA COLUMN.
0394	00531	001323		RAR,RAR	SHIFT ROWS 12-5 TO LOWER.
0395	00532	001323		RAR,RAR	SHIFT ROWS 12-5 TO LOWER.
0396	00533	010074		AND LOHAF	ISOLATE THE RECORD WORD LENGTH.
0397	00534	003007		CMA,INA,SZA,RSS	ZERO RECORD LENGTH?

0398	00535	026631R		JMP ERROR	YES, GO FLAG WORD COUNT ERROR.
0399	00536	072071R		STA WCI	NO, SAVE THE RECORD WORD LENGTH
0400	00537	016513R		JSB INDEX	GO COMPUTE THE WORD COUNT INDEX
0401	00540	062071R		LDA WCI	LOAD THE WORD COUNT INDEX.
0402	00541	042527R		ADA D60	
0403	00542	002020		SSA	IS THE WORD COUNT > 60?
0404	00543	026631R		JMP ERROR	YES, GO FLAG WORD COUNT ERROR.
0405	00544	166061R		LDB INPTR,I	NO, LOAD DATA COLUMN 1 OF 4.
0406	00545	036061R		ISZ INPTR	INCREMENT BUFFER ADDRESS POINTER
0407	00546	005700	UNPAK	BLF	SHIFT COLUMN TO BITS 15-4.
0408	00547	076072R		STB TEMP	SAVE THE DATA COLUMN.
0409	00550	162061R		LDA INPTR,I	LOAD DATA COLUMN 2 OF 4.
0410	00551	036061R		ISZ INPTR	INCREMENT BUFFER ADDRESS POINTER
0411	00552	001727		ALF,ALF	SHIFT ROW 12 TO BIT 3.
0412	00553	064000		LDB A	SAVE THE DATA COLUMN.
0413	00554	010070		AND B17	ISOLATE ROWS 12-1.
0414	00555	032072R		IOR TEMP	INCLUDE COLUMN #1.
0415	00556	016576R		JSB STORE	GO STORE DATA WORD 1 OF 3.
0416	00557	010075		AND HIHAF	ISOLATE ROWS 2-9.
0417	00560	072072R		STA TEMP	SAVE THE PARTIAL DATA COLUMN.
0418	00561	005727		BLF,BLF	SHIFT ROW 12 TO BIT 7.
0419	00562	005700		BLF	SHIFT ROW 12 TO BIT 7.
0420	00563	060001		LDA B	LOAD DATA COLUMN 3 OF 4.
0421	00564	010074		AND LOHAF	ISOLATE ROWS 12-5.
0422	00565	032072R		IOR TEMP	INCLUDE COLUMN #2.
0423	00566	016576R		JSB STORE	GO STORE DATA WORD 2 OF 3.
0424	00567	012573R		AND HIFOR	ISOLATE ROWS 6-9.
0425	00570	030001		IOR B	INCLUDE DATA COLUMN 4 OF 4.
0426	00571	016576R		JSB STORE	GO STORE DATA WORD 3 OF 3.
0427	00572	026546R		JMP UNPAK	GO PROCESS THE NEXT 4 COLUMNS.
0429	00573	170000	HIFOR	OCT 170000	
0430	00574		D16	EQU *	
0431	00574	000020	B20	OCT 20	
0432	00575		D32	EQU *	
0433	00575	000040	B40	OCT 40	
0435	00576	000000	STORE	NOP	
0436	00577	172063R		STA EXPTR,I	STORE THE BINARY DATA WORD.
0437	00600	036063R		ISZ EXPTR	INCREMENT BUFFER ADDRESS POINTER
0438	00601	036066R		ISZ CNTR	INCREMENT THE WORD COUNTER.
0439	00602	060001		LDA B	LOAD THE PREVIOUS DATA COLUMN.
0440	00603	166061R		LDB INPTR,I	LOAD THE NEXT DATA COLUMN.
0441	00604	036061R		ISZ INPTR	INCREMENT BUFFER ADDRESS POINTER
0442	00605	036071R		ISZ WCI	IS THE BUFFER EXHAUSTED?
0443	00606	126576R		JMP STORE,I	NO, RETURN.
0444	00607	026506R		JMP TLOG	YES, GO LOAD TRANSMISSION LOG.
0446	00610	005600	OPERR	ELB	SHIFT BIT 12 TO BIT 15.
0447	00611	006020		SSB	PICK FAILURE?
0448	00612	026624R		JMP PICKF	YES, GO CHECK FOR RETRY.
0449	00613	002045		SEZ,INA,RSS	DEVICE INOPERABLE?
0450	00614	062575R		LDA B40	NO - BAD HOPPER
0451	00615	130206	NOPCK	IOR EQT4,I	INCLUDE THE UPPER STATUS.
0452	00616	170206		STA EQT4,I	UPDATE THE STATUS WORD
0453	00617	002404		CLA,INA	SET FOR NOT READY RETURN

0454	00620	006020		SSB	PICK FAILURE OR TRANSMISSION ERR
0455	00621	042111R		ADA D2	YES - CHANGE TO TRANSMISSION ERR
0456	00622	006400	R.ERR	CLB	
0457	00623	126210R		JMP C,15,I	RETURN
0459	00624	072000R	PICKF	STA I,15	CLEAR THE INITIATION FLAG.
0460	00625	134217		ISZ EQT13,I	IS THIS THE LAST RETRY?
0461	00626	026057R		JMP READ1	NO, GO RETRY THE READ.
0462	00627	062574R		LDA B20	YES - GO DO
0463	00630	026615R		JMP NOPCK	ERROR RETURN
0465	00631	062111R	ERROR	LDA D2	SET IO ERROR STATUS
0466	00632	007400		CCB	GO DO
0467	00633	026615R		JMP NOPCK	ERROR RETURN

0469 00634 000635R TABLE DEF ++1 ASCII LOOKUP TABLE

0471* EBCDIC PUNCH SET

0473 00635 020061 ASC 16, 123456789:#!"-JKLMNOPQR[,*))]

00636 031063

00637 032065

00640 033067

00641 034071

00642 035043

00643 040047

00644 036442

00645 026512

00646 045514

00647 046516

00650 047520

00651 050522

00652 020444

00653 025051

00654 035535

0474 00655 030057 ASC 16,0/STUVWXYZ\,x+>?&ABCDEFGHI[,<(+†

00656 051524

00657 052526

00660 053530

00661 054532

00662 056054

00663 022537

00664 037077

00665 023101

00666 041103

00667 042106

00670 043107

00671 044111

00672 055456

00673 036050

00674 025536

0476 00675 000000 I,BUF BSS 96 INTERNAL BUFFER

0478* SYSTEM BASE PAGE COMMUNICATION AREA:

0480	00202	.	EQU	202B
0481	00205	EQT3	EQU	.,+3
0482	00206	EQT4	EQU	.,+4
0483	00207	EQT5	EQU	.,+5
0484	00213	EQT9	EQU	.,+9
0485	00214	EQT10	EQU	.,+10
0486	00215	EQT11	EQU	.,+11
0487	00216	EQT12	EQU	.,+12
0488	00217	EQT13	EQU	.,+13
0489	00220	EQT14	EQU	.,+14
0490	00257	CHAN	EQU	.,+55B
0491	00224	RQCNT	EQU	224B

0493	00041	N10	EQU	41B
0494	00063	B10	EQU	63B
0495	00067	B100	EQU	67B
0496	00060	D5	EQU	60B
0497	00061	D6	EQU	61B
0498	00062	D7	EQU	62B
0499	00064	D9	EQU	64B
0500	00070	B17	EQU	70B
0501	00072	B77	EQU	72B
0502	00074	LOHAF	EQU	74B
0503	00075	HIHAF	EQU	75B

0505	00000	A	EQU	0
0506	00001	B	EQU	1

0508	00000	CR	EQU	0
0509	00006	DMA	EQU	6

0511	00061	INPTR	EQU	DMA1
0512	00063	EXPTR	EQU	DMA2
0513	00064	COUNT	EQU	DMA3
0514	00066	CNTR	EQU	DMA4
0515	00067	TOTAL	EQU	DMA5
0516	00071	WCI	EQU	DMA6
0517	00072	TEMP	EQU	DMA7
0518	00215	EIGHT	EQU	DMA8
0519	00070	NULL	EQU	CR1

0521 END

** NO ERRORS*

.	00480 00487	00481 00488	00482 00489	00483 00490	00484	00485	00486
A	00535	00171	00412				
A2	00046	00040					
A3	00078	00058	00085				
A4	00133	00042	00052	00088			
B	00536 00420	00051 00425	00208 00439	00293	00306	00307	00386
B10	00494	00081	00286				
B100	00495	00033	00100	00144	00232		
B160	00328	00227					
B1600	00248	00137					
B17	00500	00413					
B20	00431	00236	00344	00462			
B200	00341	00336					
B3700	00029	00032					
B40	00433	00234	00299	00450			
B400	00027	00035					
B4000	00110	00146					
B4200	00111	00148					
B4300	00112	00127					
B5000	00375	00121	00135				
B5200	00198	00123					
B600	00028	00037					
B700	00139	00139					
B77	00501	00062					
B7777	00329	00217					
BELL	00081	00036					
BINARY	00343	00200					

BIT1	00287	00325					
BIT8	00286	00257					
BLANK	00299	00219					
BUF	00157	00193					
BUFAD	00106	00064					
C.15	00169	00004	00163	00164	00320	00457	
C.RTN	00163	00075					
CHADR	00212	00207					
CHAN	00490	00130					
CLCSC	00158	00117	00133	00160			
CNTR	00514	00184	00225	00311	00369	00373	00438
COUNT	00513	00185	00216	00224	00343	00354	
CR	00508	00070	00086	00119	00126	00173	
CR1	00070	00122	00519				
CR2	00086	00082	00097	00128			
D16	00430	00235					
D2	00089	00046	00279	00455	00465		
D3	00090	00020	00021	00078	00275		
D32	00432	00233					
D4	00091	00044	00083	00103	00141	00271	
D48	00327	00237					
D5	00496	00267					
D6	00497	00263					
D60	00391	00402					
D7	00498	00259					
D9	00499	00247					
DMA	00509 00072	00063 00174	00065 00187	00066	00068	00069	00071

DMA1	00063	00140	00511				
DMA2	00065	00147	00512				
DMA3	00066	00142	00513				
DMA4	00068	00145	00514				
DMA5	00069	00143	00515				
DMA6	00071	00136	00516				
DMA7	00072	00134	00517				
DMA8	00174	00138	00518				
DMA9	00187	00149					
DSTAT	00173	00124					
DYSTA	00043	00038					
EIGHT	00518	00223	00255	00285	00323		
END,	00317	00376					
EOF	00331	00313	00334	00358			
EQT10	00485	00212	00379				
EQT11	00486 00381	00049	00055	00182	00202	00314	00372
EQT12	00487	00131	00170				
EQT13	00488	00060	00460				
EQT14	00489	00041	00054	00319			
EQT3	00481	00061					
EQT4	00482 00337	00017 00451	00018 00452	00048	00151	00153	00335
EQT5	00483	00176	00181	00332			
EQT9	00484	00019	00031	00099	00196	00359	
ERROR	00465	00189	00239	00284	00324	00398	00404
EXPTR	00512 00436	00214 00437	00302	00308	00367	00368	00380
EXTRA	00160	00172					
HIFOR	00429	00424					

HIHAF	00503	00152	00416				
HOPR	00083	00034					
I,16	00011 00104	00004 00459	00025	00047	00074	00076	00079
I,BUF	00476	00106	00157				
IMAGE	00365	00371					
INDEX	00378	00364	00389	00400			
INPTR	00511 00366 00441	00194 00393	00215 00405	00221 00406	00242 00409	00301 00410	00365 00440
LOHAF	00502	00050	00296	00396	00421		
LOOP	00215	00310					
N10	00493	00059	00093				
N97	00108	00067	00188	00191			
NOHI	00241	00230					
NOLOW	00288	00244					
NOPCK	00451	00463	00467				
NULL	00519	00186	00352	00356			
OK	00016	00014					
OKSTA	00048	00045					
ONE	00322	00282					
OPERR	00446	00179					
PACKB	00393	00362					
PICKF	00459	00448					
R,ERR	00456	00183	00339				
R3	00031	00022					
READ	00054	00024					
READ0	00057	00102					
READ1	00061	00461					

RQCNT	00491	00043					
RVRSE	00344	00355					
SET	00283	00250	00262	00266	00270	00274	00278
SETIO	00116	00012	00155				
SKIP	00099	00056					
STORE	00435	00415	00423	00426	00443		
TABLE	00469	00290					
TEMP	00517 00417	00195 00422	00345	00350	00353	00408	00414
TLOG	00372	00444					
TOTAL	00515	00241	00287				
UNPAK	00407	00427					
WCI	00516 00388	00192 00399	00201 00401	00211 00442	00309	00363	00370